Goddard Procedures and Guidelines

DIRECTIVE NO. GPG 5340.2
EFFECTIVE DATE:
EXPIRATION DATE:

APPROVED BY Signature:
NAME: A. V. Diaz
TITLE: Director

Responsible Office: 300/Office of Systems Safety and Mission Assurance

Title: CONTROL OF NONCONFORMING PRODUCT

Preface

P1. PURPOSE

This procedure establishes the process for documentation and disposition of nonconformances.

P2. APPLICABILITY

This procedure applies to all products and processes covered by the scope of the Quality Management System (QMS).

P3. AUTHORITY

GPD 1270.3, GSFC Quality Management System (QMS)

P4. REFERENCES

a. GPG 1270.4, Quality System

b. GPG 1310.1, Customer Agreements

c. GPG 1710.1, Corrective and Preventive Action

d. GPG 4520.2, Incoming Inspection and Test

e. GPG 5100.1, Procurement

f. GPG 5100.2, Supplier Performance Records

g. GPG 5330.3, Inspection and Test Status

h. GPG 9980.1, Internal Audit System

P5. CANCELLATION

a. GMI 5310.1, GSFC Problem/Failure Anomaly Reporting

b. GMI 1761.1, Hazardous Excess Equipment, Material, and Components

Procedure

1. DEFINITIONS

a. Material Review Board (MRB) – Individual(s), identified in applicable product management plans (see GPG 1270.4), authorized to evaluate and disposition nonconforming product and determine corrective action.

b. Nonconformance – Non-fulfillment of a specified requirement.

c. Failure – A product nonconformance identified while the product is mechanically functioning or operating in a powered condition.

d. Disposition – Action taken on a product nonconformance. Possible dispositions are:

1. Rework - Action taken on nonconforming product so that it will fulfill the specified requirements. This disposition includes software "upgrades".

2. Repair - Action taken on nonconforming product so that it will fulfill the intended usage requirements although it does not conform to the originally specified requirements.

3. Use-as-is – Approving the use of nonconforming product without resort to rework or repair. For software, this may necessitate generation of operational notes describing ways to avoid effects of the nonconformance during operation.

4. Reclassify - Action taken to revise the classification status of nonconforming product for alternate use (e.g., reclassify from "Space Flight Hardware" to "Not for Space Flight Use").

5. Return To Vendor – Action taken to return nonconforming product to the vendor for replacement (if desired) and corrective action.

6. Scrap – Action taken on nonconforming product to make it unusable and to remove it from the quality management system.

2. IMPLEMENTATION

2.1 Nonconformance Identification

Upon completion of an NCR by the initiator (see 2.2) nonconforming product shall be tagged with a Nonconformance Tag (see Figure 1) by the MRB designee identified in the project MRB procedure (see 2.4.1). If product tagging is impractical or potentially detrimental to the product, the tag shall be prominently displayed in the accompanying product inspection and test status documentation (see GPG

5330.3). The tag shall remain on/with the nonconforming product until completion of product disposition actions.

2.2 Nonconformance Documentation

All product, process, and Quality Management System nonconformances shall be identified on the GSFC Nonconformance Report (NCR) form (see Attachment). NCR's associated with product shall be cross-referenced on the Nonconformance Tag and the applicable Work Order Authorization (WOA), or equivalent, in accordance with GPG 5330.3.

2.3 Nonconforming Product Segregation

Except for incoming product released for urgent production purposes prior to product verification (see GPG 4520.2), all nonconforming product shall be physically segregated from conforming product in such a way as to prevent accidental use of the nonconforming product until appropriate disposition is determined and implemented. If physical segregation is impractical (e.g., due to size, environmental concerns, etc.), nonconforming product shall be separated from normal process flow to the extent possible.

2.4 Nonconformance Evaluation and Disposition

2.4.1 Each GSFC Project shall document nonconforming product evaluation and disposition procedure(s) as part of Quality Planning documentation required by GPG 1270.4. The procedure(s) shall address the following, as a minimum:

a. Project Material Review Board (MRB) membership;

b. MRB operation, including any differences between pre-mission operation and mission operation phases;

c. Any restrictions on who can document a NCR against project product;

d. Responsibility for tagging and segregating nonconforming product;

e. Identification and operation of segregation area(s)/facility(s);

f. NCR disposition/corrective action authority, including instances requiring customer approval. Note: Disposition and corrective action determination authority may be unilateral, majority, and/or unanimous under pre-defined circumstances;

2.4.2 Product-oriented NCR's shall be evaluated and dispositioned in accordance with the MRB procedure of the Project identified in the NCR. If the responsible Project is no longer in existence (e.g., a customer complaint generated after project dissolution), the NCR shall be evaluated and dispositioned by the project's Directorate Office. NCR's shall be evaluated for the need for corrective action by the responsible organization identified in the NCR (see GPG 1710.1).

2.4.3 Nonconforming product disposition shall be one of the following:

a. Rework -This disposition requires generation of a Work Order Authorization or equivalent (see GPG 5330.3) for the rework and re-inspection/re-test.

b. Repair - This disposition requires generation of a Work Order Authorization or equivalent (see GPG 5330.3) for the repair and re-inspection/re-test.

c. Use-As-Is

d. Re-Classify

e. Return to Vendor

f. Scrap - This disposition shall specify how the product will be scrapped.

After MRB documentation of product disposition and prior to any required root cause analysis, cause correction and remedial action, the product may be released for disposition processing.

2.5 Notification of Nonconforming Product

2.5.1 When required by customer agreement (see GPG 1310.1), and as indicated in the Project procedure (see 2.4.1), NCR's resulting in repair or use-as-is dispositions shall be forwarded by the MRB, through the appropriate Contracting Officer, to the customer for approval prior to disposition implementation.

2.5.2 "Return to Vendor" NCR's and NCR's generated against product during incoming inspection and test (see GPG 4520.2) shall be forwarded by the MRB, through the appropriate Contracting Officer, to the vendor for information and/or corrective action in accordance with GPG 1710.1. The Contracting Officer shall consider the impact of NCR's generated against supplier performance as part of supplier evaluation in accordance with GPG 5100.2.

2.5.3 NCR's generated as a result of internal audit shall be handled in accordance with GPG 9980.1.

2.5.4 NCR's generated as a result of a supplier audit shall be included as part of the audit report for supplier response and corrective action (see GPG 5100.1).

2.6 Customer Complaints

Documented customer complaints shall be forwarded to the applicable Project Office or the Project's Directorate Office if the Project no longer exists. The Project/Directorate shall generate a uniquely identified NCR reflecting the complaint for disposition and corrective action.

2.7 Closing NCR's

NCR's shall be closed when either (1) the product has dispositioned and it is determined that no corrective action is warranted (see GPG 1710.1), or (2) when corrective action is warranted, corrective action has been determined, documented and found effective by follow-up action in accordance with GPG 1710.1.

3. RECORDS

Nonconformance Reports (NCR’s)

GSFC NONCONFORMANCE REPORT

[1] NCR #

IDENTIFICATION AND DISPOSITION

[2] Found by:
- ☐ a. Internal Audit
- ☐ b. Supplier Audit (enter supplier in 5a)
- ☐ c. Customer Complaint
- ☐ d. Incoming Inspection/Test (enter supplier in 5a)
- ☐ e. In-process/Final Inspection/Test (non-operational)
- ☐ f. Pre-Launch/Pre-Flight Operation
- ☐ g. Mission Operation
- ☐ h. CA follow-up

[3] Initiator/Code/Date

[4] Reference(s)
- ☐ WOA #:
- ☐ WOA Event #:
- ☐ Audit ID #:

[5] Responsible Project/Organization

[5a] Supplier

[6] Item Description

[7a] Item Type
- ☐ 1. Document (complete 7d)
- ☐ 2. Material (complete 7b)
- ☐ 3. EEE Part (complete 7b, 7c)
- ☐ 4. Mechanical Part (complete 7b, 7c, 7d)
- ☐ 5. Subass'y/Ass'y (complete 7c, 7d)
- ☐ 6. Component (complete 7c, 7d)
- ☐ 7. Subsystem/System (complete 7c, 7d)
- ☐ 8. Software (complete 7d)
- ☐ 9. QMS Element (complete 7e)

[7b] Lot/Heat #

[7c] Serial # (when applicable)

[7d] Item Configuration #/Rev.

[7e] System Element

[8] Description of Nonconformance

[8a] Defect Code:

[9] Product Disposition (not applicable to Item Type 7a(9))
- ☐ Rework ☐ Repair ☐ Scrap ☐ Return to Vendor
- ☐ Use-As-Is ☐ Reclassify

Customer Approval Required? ☐ Yes ☐ No

Additional Disposition Instructions:

[10a] Disposition Approval/Code

[11] Date

[10b] Customer Approval on file? ☐ Yes ☐ No

CORRECTIVE ACTION

[12] The nonconformance:
- ☐ was identified as a result of internal or supplier audit
- ☐ was identified as a result of customer complaint
- ☐ affects mission or personnel safety
- ☐ is known or suspected to have occurred previously on same or similar product
- ☐ would have posed a significant risk to mission success (performance, schedule, resources) if undetected.

Complete Corrective Action if one or more blocks above are checked

[13] Root Cause:

[13a] Cause Code:

Action Taken to Correct Cause:

Remedial Action:

[14a] CA Initiation Date	[14b] CA Completion Date	[14c] CA Follow-up Date	[15] CA Approval/Code/Date

[16] CA Follow-up

CA Implemented and Effective? ☐ Yes ☐ No _____ _____

Name/Code Date

If "NO", new NCR # _____

GSFC Form _____

Attachment

Form Instructions

1. NCR #
   For product nonconformances: The corresponding WOA# plus a sequentially assigned numeric NCR serial number (e.g., HST5/9/97-1). For NCR's generated as a result of audit,: The report number plus a sequentially assigned numeric NCR serial number. For Customer Complaints: A Directorate/Project assigned unique number.
2. Check one box
3. First and last name of NCR Initiator, his/her org. code number and initiation date
4. Check applicable box and identify WOA and WOA Event number, or Report (e.g. Audit report) number
5. Identify Project or organization whose product or implementation is nonconforming

5a. Identify supplier providing product or being audited

6. Name of discrepant product or system element

7a Check one box
7b Identify material/part lot/heat number
7c Identify item serial number whenever applicable
7d Identify item configuration. Number (e.g., drawing number)
7e Identify nonconforming quality system element (e.g., Process Control, Training)

8. Describe/reference requirement vs. actual condition

8a. Identify defect code from below

9. Check one disposition and identify if customer disposition approval is required. Define additional instructions as necessary.

10a. Authorized MRB signature and Code
10b. Indicate yes or no

11. Date of MRB signature
12. Check all that apply. If none apply, NCR is closed.
13. Identify all elements of corrective action: Root Cause, Action taken to Correct Cause, and Remedial Action

13a. Identify cause code from below
14a. Indicate when corrective actions will be initiated
14b. Indicate when corrective actions will be complete
14c. Indicate when corrective action implementation and effectiveness, after completion, will be evaluated

15. Authorized signature (MRB, Audit Lead, etc.) and Org. number approving corrective action and schedule
16. Check one block. A checked "NO" block requires generation of a new NCR (NCR # = Original # - FU).
    For example HST5/9/97-1-FU

DEFECT CODES

000	Conformal Coating	160	Thermal Cycle Test
010	Contamination	170	Vibration Test
020	Damage	180	Thermal-Vacuum Test
030	Dimensional	190	Welding/Welds
040	Documentation	200	Wiring
050	Electronic/Electrical	210	Continuity/Ground
060	Finish	220	Software Code
070	Identification	230	Quality System Element
080	Material	240	Mission Operation
090	Mechanical	250	No Product/System Defect. NCR Initiated in error
100	Soldering		
110	Acoustic Test		
120	EMI/EMC Test		
130	Leak Test		
140	Performance Test		
150	Shock Test		

CAUSE CODES

000	Design Deficiency
010	Procedure not available
020	Procedure not implemented
030	Procedure inadequate
040	Inadequate training/certification
050	Equipment malfunction
060	Cause Unknown (After investigation/troubleshooting)

Continuation of Block 13 from front

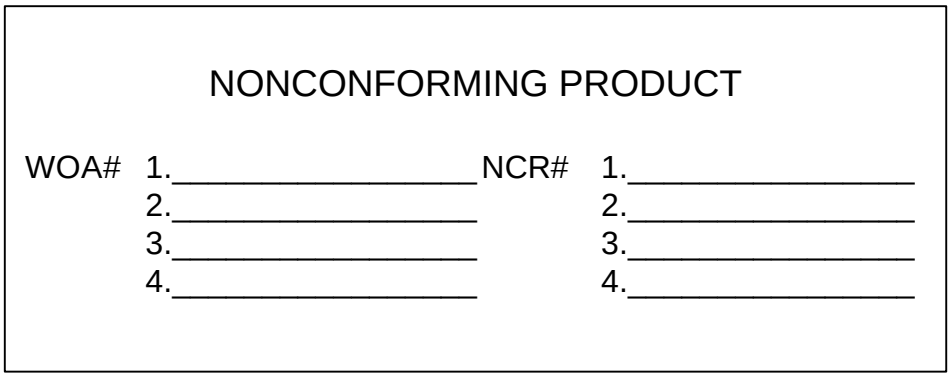
Root Cause:

Action Taken to Correct Cause:

Remedial Action:

GSFC Form _____

Attachment (Reverse)



(Red Tag)

Figure 1

Control of Nonconforming Product Flowchart

Figure 2